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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,227

09/24/2004

Paul Haener

P-6939-US

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Pearl Cohen Zedek Latzer, LLP  
1500 Broadway  
12th Floor  
New York, NY 10036

EXAMINER

ALAM, RASHID A

ART UNIT

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4191

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,227	<b>Applicant(s)</b> HAENER ET AL.	
	<b>Examiner</b> RASHID A. ALAM	<b>Art Unit</b> 4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3-26-08.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9-24-2004</u> .   | 6) <input type="checkbox"/> Other: _____                          |

**DEVICE AND METHOD FOR PREPARING AN ELECTROCHEMICAL SENSOR**

Examiner: Rashid Alam    S.N. 10/509,227    Art Unit: 4191    March 26, 2008

**Detailed Action**

***Claim Rejections - 35 USC § 103***

1.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2.     Claims 1-5, 8-20, and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madden (US 4,502,213) in view of Hale (4,325,797).

Regarding claims 1 and 9, Madden teaches an apparatus for the automatic assembly and of an electrochemical cell packaged in a cylindrical casing, wherein the cell casing (holding means), containing a coiled electrode assembly, is advanced by a horizontal rotary index table through a series of operational locations (see abstract). Madden goes on to teach the cell can be stopped momentarily at a station, connected to the apparatus, which dispenses fluid electrolyte into the open end of the cell (see column 5, lines 29-30). However, Madden does not teach a means for dispensing a membrane.

Hale teaches a method of mounting and securing a membrane of polymer film on an amperometric cell that has a cylindrical cell end provided with an electrolyte-bearing sensor face and a holding member (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a

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means for dispensing a membrane in the development of an electrochemical cell of Madden, because Hale teaches a means to shapingly deform a semi-permeable membrane so as to improve mechanical and operational stability in the development of an amperometric cell.

Regarding claim 2, Madden teaches the holding means, the means for dispensing the electrolyte, the means for dispensing the membrane, are all arranged within the cell casing, or holding means (see fig. 3).

Regarding claim 3, Madden teaches the electrolyte dispenser displaceably mounted with respect to the holding means, such that the electrolyte is able to be supplied to the sensor held in the holding means (see figure 3, 43 and 40). However, Madden does not teach a membrane dispenser.

Hale teaches a membrane dispenser with a holding means and a mounting and securing method of the membrane on an amperometric cell (see column 3, lines 42-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a means for dispensing a membrane in the development of an electrochemical cell of Madden, because Hale teaches a method of mounting and securing a membrane formed of a flexible polymer film on an amperometric cell having a substantially cylindrical cell end frontally provided with an electrolyte-bearing sensor face by means of a removable annular holding member, by using, as said holding member.

Regarding claims 4, 5, and 23 Madden teaches as stated above. However Madden does not teach a pressing means with a pressing surface or pressing body.

Hale teaches to resiliently press the polymer film onto the electrolyte bearing sensor face (pressing body) during the deep-drawing operation caused by movement of the die ring over a predetermined end portion of the cylindrical outer cell surface, e.g. by means of a relatively soft rubber plate (pressing surface). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a pressing means while dispensing a membrane in the development of an electrochemical cell of Madden, because Hale teaches a to press the polymer film between to surfaces To safely preclude unintentional stretching of the membrane on top of the sensor face.

Regarding claim 8, Madden teaches a common carrier, or housing, that serves as a holding unit capable of holding the means for dispensing an electrolyte, means for dispensing the membrane, means for removal of the membrane and means for cleaning of the membrane during assembly of an electrochemical cell (see figure 1).

Regarding claims 10-12, Madden teaches a casing as seen in figure 3 that encloses the electrolyte dispensing system 43 and 40 that is in a rotary assembly system with an actuating means to deliver the product being made. It would have been obvious to one of ordinary skill in the art at the time of the invention to enclose the electrolyte and membrane dispensing means, the cleaning and removing membrane means with a removable covering to allow access to the system in order to make appropriate adjustments or repairs to the apparatus or to perform. This can be seen in re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except

that in the prior art the cap is “press fitted” and therefore not manually removable. The court held that “if it were considered desirable for any reason to obtain access to the end of [the prior art’s] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.”)

Regarding claims 13 and 24, Madden teaches the actuating means being the vertical indexing dial that receives and carries the cell cover through the operative assembly stations (see figure 4).

Regarding claims 15 and 22, Madden teaches an indexing table (common carrier) as a holding apparatus for holding the means for dispensing and removal of the membrane and the means for dispensing the and cleaning of the electrolyte all situated in a peripheral direction following one another spaced apart in an axis of rotation as can be seen in figure 3.

Regarding claims 16-18, and 26 Madden teaches a common carrier (indexing table) with several stations that follow each other (connection parts) and has a circular path during the assembly of an electrochemical cell (see figure 3).

Regarding claims 19 and 20, Madden teaches as stated above. However, Madden does not teach a method for the preparation of an electrochemical sensor along with a pressing force.

Hale teaches in figure 5, a device for depositing a membrane by Fill sensor via face with electrolyte until a convex meniscus is visible above the profile of face; eliminate bubbles by tapping the side; push die ring on to the lower end of plunger tube sufficiently firmly that it cannot fall off; check that the rubber face which contacts the

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membrane (not shown) is clean; raise plunger to its uppermost limit by turning cam at the top of plunger in the anticlockwise direction; attach membrane mounting device 50 to sensor by means of collar 38; place a clean disc of polymer film for the membrane (not shown) on sensor face in a centrally symmetrical position; lower plunger slowly by turning cam; pause for a few seconds when rubber end of plunger is pressed lightly on to the polymer film to allow excess electrolyte to escape from the top of sensor; then continue turning cam to its limit to force die ring from its temporary position on into its final position on cylindrical cell end of sensor; unscrew cam to raise plunger and detach membrane mounting device from collar; best performance of sensor is achieved if the membrane-enclosed end is completely free of air bubbles and the membrane is free of folds or wrinkles; wash excess electrolyte off the outside of the sensor and wipe dry.

While use of an applicator of the type illustrated in FIG. 5 is not critical, such use embodies a most convenient and preferred way of operating the inventive method. (see column 10, lines 44-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a pressing means while dispensing a membrane in the development of an electrochemical cell of Madden, because Hale teaches a process to deposit a membrane on a sensor in order to shape and mold the membrane correctly to match the sensor head.

Regarding claims 25 and 14, Madden teaches a cover assembly that is carried through the assembly line in assembling the electrochemical cell that is removable and disposable because it is not permanently mounted to the assembly line and the cover

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assembly is able to be switched without disturbing the operation of the assembly device (see abstract).

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madden (US 4,502,213) and Hale (4,325,797), as applied to claims 1-5, 8-20, and 22-25 above, and further in view of McGandy (US 4,285,792).

Regarding claim 6, Madden and Hale teach as stated above. However Madden and Hale do not teach mechanically cleaning the membrane.

McGandy teaches a mechanically powered brush arrangement cleans the chamber interior and electrodes of a pH meter or sensor, including the membrane and electrolyte of the electrochemical apparatus (see column 1, lines 49-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a means for cleaning a membrane in the development of an electrochemical cell, because McGandy teaches cleaning the interior chamber of a pH metering apparatus, where the membrane and electrolyte is located, allowing the electrodes of the apparatus to function optimally.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madden (US 4,502,213) and Hale (4,325,797), as applied to claims 1-5, 8-20, and 22-25, and 23-25 above, and further in view of Cortina (US 4,738,765).

Regarding claim 7, Madden and Hale teach as stated above. However Madden and Hale do not teach a membrane being removed.



Cortina teaches a membrane being removed from an electrolytic cell by mechanical means of sandwiched configuration between a mounting ring and a stainless steel disk (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a means for dispensing and removing a membrane in the development of an electrochemical cell of Madden and Hale, because Cortina teaches the removal of a membrane to prevent contamination of the membrane during use or assembly.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madden (US 4,502,213) and Hale (4,325,797), as applied to claims 1-5, 8-20, and 22-25 above, and further in view of Patt (US 3,946,599).

Regarding claim 21, Madden and Hale teach as stated above. However Madden and Hale do not teach a membrane being removed, cleaned, and replaced.

Patt teaches a screw-on cap is used as a membrane retention device thereby enabling the cap to be removed for membrane-cleaning purposes. In the case of the applicators shown in FIGS. 3 and 4 tube 27 or 27a may be removed from conduit 27 to facilitate cleaning of the membrane; the components are in this case releasably connected together by a conventional hose-clamp 39 or equivalent device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a means for dispensing and removing and cleaning a membrane in the development of an electrochemical cell of Madden and Hale, because Patt teaches a membrane retention device for removing a membrane for cleaning purposes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RASHID A. ALAM whose telephone number is (571)270-3959. The examiner can normally be reached on Monday to Friday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rashid A Alam/  
Examiner, Art Unit 4191

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 4191